

Listing of Claims:

This listing of claims replaces all prior versions, and listings, of claims in the above-captioned application.

1. (Currently Amended) A portable communication device, comprising:
a master component in communication with a system bus operating according to a bus protocol; and

an electro-mechanical or electro-acoustical component disposed within a housing of said portable communication device, said electro-mechanical or electro-acoustical component having a housing in which [[an]] a digital interface coupled to a system bus and a bus controller are disposed, said digital interface being in communication with said system bus and with said bus controller, said system bus including at least two signal-carrying lines, one of said lines carrying a digital signal and at least one other intended signal between said master component and said digital interface of said electro-mechanical or electro-acoustical component at least one peripheral device, said one of said lines being termed a composite line, said bus controller formatting a signal of said component according to said bus protocol for communication over at least said composite line of said system bus.

2. (Currently Amended) The portable communication device of claim 1, wherein said portable communication device is one of a hearing instrument, a headset, a personal digital assistant, and a portable telephone, said master component being powered by and is adapted to receive power from a battery to which one of said at least two signal-carrying lines is coupled.

3. (Original) The portable communication device of claim 1, wherein said electro-mechanical or electro-acoustical component is one of an electret-type condenser microphone, a MEMS-based microphone, a receiver, a telecoil, a volume control, a sensitivity control, and a switch.

4. (Previously Presented) The portable communication device of claim 1, further including a resistor or a current source, wherein said system bus is coupled to said resistor or to said current source.

5. (Previously Presented) The portable communication device of claim 4, wherein said resistor is a pull-down resistor having a value between substantially 500 kilo-ohms to substantially 1200 kilo-ohms.

6. (Original) The portable communication device of claim 1, wherein said composite line carries at least any two of a power signal, a reference signal, a clock signal, a synchronization signal, and a data signal.

7. (Previously Presented) The portable communication device of claim 1, wherein said digital signal is a data signal that is time multiplexed into blocks having a number of frames, each frame having at least one data slot.

8. (Currently Amended) The portable communication device of claim 7, wherein each of said number of frames includes a control slot carrying control data between said master component and said electro-mechanical or electro-acoustical component at least one peripheral device, said data signal carrying audio data, a sample of said audio data being transferred via said system bus across at least two frames.

9. (Previously Presented) The portable communication device of claim 7, wherein said data signal includes control data for controlling a characteristic of said electro-mechanical or electro-acoustical component.

10. (Original) The portable communication device of claim 7, wherein said at least one data slot is programmable by said master component to include a plurality of data slots.

11. (Previously Presented) The portable communication device of claim 1, wherein the power consumption of said system bus is between substantially 30 microwatts and substantially 1 milliwatt, and components coupled to said system bus, including said master component and said electro-mechanical or electro-acoustical component, operate at a voltage between about 0.7 and about 2.0 volts.

12. (Previously Presented) The portable communication device of claim 1, wherein the total power consumption of said portable communication device is between substantially 0.2 milliwatts and substantially 2 watts.

13. (Original) The portable communication device of claim 1, wherein said master component is one of a digital signal processor and an ASIC.

14. (Previously Presented) The portable communication device of claim 1, further including a wireless interface coupled to said system bus in said portable communication device, said portable communication device being programmable via said wireless interface with programming data to cause internal parameters of said portable communication device to be adjusted.

15. (Previously Presented) The portable communication device of claim 1, further including a wireless interface coupled to said system bus in said portable communication device, said portable communication device being programmable via said wireless interface with audio processing data to cause real-time adjustment of processing parameters of said portable communication device.

16. (Previously Presented) The portable communication device of claim 1, further including a wireless interface adapted to communicate wirelessly data between said portable device and another portable device.

17. (Original) The portable communication device of claim 1, wherein each data bit transmitted on said system bus is sampled twice to increase immunity to glitches and noise on said system bus.

18. (Original) The portable communication device of claim 17, wherein said composite line carries a data signal and a synchronization signal, said double-sampling of each bit permitting said synchronization signal to be transitioned during any rising or falling edge of the system clock of said double-sampling, whereby said double-sampling enables reliable discrimination between said data signal and said synchronization signal.

19. (Previously Presented) The portable communication device of claim 1, wherein said digital signal is a synchronization signal that includes a first bit composed of two sampled values and a second non-consecutive data bit composed of two sampled values, said synchronization signal signaling a valid synchronization when the two sampled values of said first data bit are identical and when the two sampled values of said second data bit are identical.

20. (Previously Presented) The portable communication device of claim 1, further including an external interface, said external interface being coupled to said system bus and to an external system bus that includes at least two signal-carrying lines, one of said lines carrying a digital signal and at least one other intended signal between at least one external master component and an external peripheral device that includes an electro-mechanical or electro-acoustical component, said external system bus being communicatively coupled to said system bus via said external interface.

21. (Original) The portable communication device of claim 1, wherein said system bus is actively driven with tri-state buffers.

22. (Previously Presented) The portable communication device of claim 1, wherein said portable communication device is a hearing instrument, said electro-mechanical or electro-acoustical component being a microphone or a receiver, said digital signal including a digital audio signal.

23. (Previously Presented) The portable communication device of claim 1, wherein said digital signal is a data signal that includes control data for controlling a characteristic of said electro-mechanical or electro-acoustical component.

24. (Previously Presented) The portable communication device of claim 1, wherein said digital signal is a data signal that includes digital audio data.

25. (Previously Presented) A portable communication device, comprising:
at least one peripheral device including an electro-mechanical or electro-acoustical component;

a master component; and

a system bus coupled to said at least one peripheral device, said system bus including at least two signal-carrying lines, one of said lines carrying a digital signal and at least one other electrical signal between said master component and said at least one peripheral device, wherein said digital signal is a synchronization signal that includes a first bit composed of two sampled values and a second non-consecutive data bit composed of two sampled values, said synchronization signal signaling a valid synchronization when the two sampled values of said first data bit are identical and when the two sampled values of said second data bit are identical.

26. (Previously Presented) A portable communication device, comprising:
at least one peripheral device including an electro-mechanical or electro-acoustical component;

a master component; and

a system bus coupled to said at least one peripheral device, said system bus including at least three wires, one of said wires carrying simultaneously a digital signal and at least one other predetermined signal between said master component and said at least one peripheral device, wherein said digital signal is a synchronization signal that includes a first bit composed of two sampled values and a second non-consecutive data bit composed of two sampled values, said synchronization signal signaling a valid synchronization when the two sampled values of said first data bit are identical and when the two sampled values of said second data bit are identical.

27. (Previously Presented) The portable communication device of claim 26, wherein the power consumption of said system bus is between substantially 0.2 milliwatts and substantially 2 watts, and components coupled to said system bus, including said master component and said at least one peripheral device, operate at a voltage between substantially 0.7 and substantially 2.0 volts.

28. (Currently Amended) The portable communication device of claim 1, further comprising at least two peripheral devices each including an electro-mechanical or electro-acoustical component, said system bus being communicatively coupled to said at least two

peripheral devices such that said at least two peripheral devices communicate data over said system bus.

29. (Currently Amended) The portable communication device of claim 1, wherein the interface bus controller connects said electro-mechanical or electro-acoustical component to said system bus through includes at least one tri-state bus driver.

30. (Previously Presented) The portable communication device of claim 1, wherein the electro-mechanical or electro-acoustical component includes a transducer coupled to an analog-to-digital converter.

31. (Previously Presented) The portable communication device of claim 30, wherein the transducer is coupled to a pre-amplifier and a decimator.

32. (Canceled) The portable communication device of claim 30, wherein the electro-mechanical or electro-acoustical component includes a bus controller coupled to the interface.

33. (Previously Presented) The portable communication device of claim 30, wherein the transducer is a silicon-based MEMS microphone.

34. (Currently Amended) The portable communication device of claim 1, wherein the digital interface is a physical bus layer.

35. (New) The portable communication device of claim 1, wherein said at least two signal-carrying lines is no more than four lines.